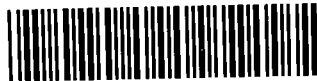


US EPA RECORDS CENTER REGION 5



452279

R5-8307-04

Facility name: GARY DEVELOPMENT LANDFILLLocation: GARY / LAKE COUNTY / INDIANAEPA Region: REGION II (CHICAGO)Person(s) in charge of the facility: STEVE GENTRY - ISBHName of Reviewer: PAUL HESSDate: 4-10-84

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

This sanitary landfill has accepted a large quantity of industrial waste. However, the surface water route is the only route to score. This is because this borrow pit is clay lined and has a leachate collection system. The water table has been depressed 30 feet and site waste is not a threat to area wells.

Scores: $S_M = 8.41$ ($S_{gw} = 0$ $S_{sw} = 14.55$ $S_a = 0$) $S_{FE} = 0$ $S_{DC} = 16.67$

FIGURE 1
HRS COVER SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
[1] Observed Release	0 <u>45</u>	1	<u>45</u>	45	4.1	
If observed release is given a value of 45, proceed to line [4] . If observed release is given a value of 0, proceed to line [2] .						
[2] Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 3	1		3		
1-yr. 24-hr. Rainfall	0 1 2 3	1		3		
Distance to Nearest Surface Water	0 1 2 3	2		6		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
[3] Containment	0 1 2 3	1		3	4.3	
[4] Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	<u>18</u>	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 <u>8</u>	1	<u>8</u>	8		
Total Waste Characteristics Score			<u>26</u>	26		
[5] Targets					4.5	
Surface Water Use	0 1 <u>2</u> 3	3	<u>6</u>	9		
Distance to a Sensitive Environment	0 <u>1</u> 2 3	2	<u>2</u>	6		
Population Served/Distance to Water Intake Downstream	<u>0</u> 4 6 8 10 12 16 18 20 24 30 32 35 40	1	<u>0</u>	40		
Total Targets Score			<u>8</u>	55		
[6] If line [1] is 45, multiply [1] x [4] x [5] $45 \times 26 \times 8 =$ If line [1] is 0, multiply [2] x [3] x [4] x [5]			<u>9,360</u>	64,350		
[7] Divide line [6] by 64,350 and multiply by 100			$S_{sw} = \underline{14.55}$			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	<u>0</u> 45	1	<u>0</u>	45	3.1	
If observed release is given a score of 45, proceed to line 4 . If observed release is given a score of 0, proceed to line 2 .						
2 Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 <u>3</u>	2	<u>6</u>	6		
Net Precipitation	0 <u>1</u> 2 3	1	<u>1</u>	3		
Permeability of the Unsaturated Zone	0 1 <u>2</u> 3	1	<u>2</u>	3		
Physical State	0 1 2 <u>3</u>	1	<u>3</u>	3		
Total Route Characteristics Score			<u>12</u>	15		
3 Containment	<u>0</u> 1 2 3	1	<u>0</u>	3	3.3	
4 Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	<u>18</u>	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 <u>8</u>	1	<u>8</u>	8		
Total Waste Characteristics Score			<u>26</u>	26		
5 Targets					3.5	
Ground Water Use	0 1 <u>2</u> 3	3	<u>6</u>	9		
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 <u>24</u> 30 32 35 40	1	<u>24</u>	40		
Total Targets Score			<u>30</u>	49		
6 If line 1 is 45, multiply 1 x 4 x 5 <u>$12 \times 0 \times 26 \times 30 =$</u> If line 1 is 0, multiply 2 x 3 x 4 x 5			<u>0</u>	57,330		
7 Divide line 6 by 57,330 and multiply by 100			$S_{gw} = $ <u>0</u>			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	<u>0</u> 45	1	<u>0</u>	45	5.1	
Date and Location:						
Sampling Protocol:						
If line 1 is 0, the $S_a = 0$. Enter on line 5 . If line 1 is 45, then proceed to line 2 .						
2 Waste Characteristics					5.2	
Reactivity and Incompatibility	0 1 2 3	1		3		
Toxicity	0 1 2 3	3		9		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score				20		
3 Targets					5.3	
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30		
Distance to Sensitive Environment	0 1 2 3	2		6		
Land Use	0 1 2 3	1		3		
Total Targets Score				39		
4 Multiply 1 x 2 x 3				35,100		
5 Divide line 4 by 35,100 and multiply by 100			$S_a = $ <u>0</u>			

FIGURE 9
AIR ROUTE WORK SHEET

Fire and Explosion Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
1 Containment	1	3	1	0	3	7.1
2 Waste Characteristics						7.2
Direct Evidence	0	3	1		3	
Ignitability	0	1 2 3	1		3	
Reactivity	0	1 2 3	1		3	
Incompatibility	0	1 2 3	1		3	
Hazardous Waste Quantity	0	1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score					20	
3 Targets						7.3
Distance to Nearest Population	0	1 2 3 4 5	1		5	
Distance to Nearest Building	0	1 2 3	1		3	
Distance to Sensitive Environment	0	1 2 3	1		3	
Land Use	0	1 2 3	1		3	
Population Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Total Targets Score					24	
4 Multiply 1 x 2 x 3					1,440	
5 Divide line 4 by 1,440 and multiply by 100					SFE = 0	

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Incident	0 45	1	0	45	8.1	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2						
2 Accessibility	0 1 2 3	1	1	3	8.2	
3 Containment	0 15	1	15	15	8.3	
4 Waste Characteristics Toxicity	0 1 2 3	5	15	15	8.4	
5 Targets					8.5	
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	16	20		
Distance to a Critical Habitat	0 1 2 3	4	0	12		
Total Targets Score			16	32		
6 If line 1 is 45, multiply 1 x 4 x 5 $15 \times 15 \times 16 =$ If line 1 is 0, multiply 2 x 3 x 4 x 5			3,600	21,600		
7 Divide line 6 by 21,600 and multiply by 100			SDC = 16.67			

FIGURE 12
DIRECT CONTACT WORK SHEET

	s	s ²
Groundwater Route Score (S _{gw})	0	0
Surface Water Route Score (S _{sw})	14.55	211.70
Air Route Score (S _a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		211.70
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		14.55
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		8.41

FIGURE 10
WORKSHEET FOR COMPUTING S_M

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: GARY DEVELOPMENT LANDFILLLOCATION: GARY / LAKE COUNTY / INDIANA

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum): SITE MONITORING WELLS THAT LIE OUTSIDE CLAY LINER OF LANDFILL DID SHOW THE PRESENCE OF PRIORITY POLLUTANTS. BUT, THEY ARE NOT ATTRIBUTED TO THIS SITE BECAUSE SURROUNDING GROUND WATER IS FLOWING TO DEPRESSED WATER TABLE OF SITE.

Rationale for attributing the contaminants to the facility: THIS OLD BORROW PIT WAS DEWATERED AND SIDEWALLS LINED WITH CLAY. THE BOTTOM OF PIT HAS 65 FEET OF NATURAL CLAY AND A LEACHATE COLLECTION SYSTEM. THE ON-SITE WATER TABLE HAS BEEN DEPRESSED 30 FEET.

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern: THE SHALLOW GLACIAL SEDIMENT AQUIFER WITH A DEPTH OF 30 TO 40 FEET. THE SULARIAN AQUIFER (NOT AQUIFER OF CONCERN) LIES UNDER 60 TO 70 FEET OF NATURAL CLAY.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern: THE DEPTH TO GROUND WATER SURROUNDING THIS SITE IS ABOUT 5 FEET AND ABOUT LEVEL WITH ELEVATION OF THE GRAND CALUMET RIVER. THE WATER TABLE ON-SITE IS SOME 30 FEET BELOW THIS LEVEL.

Depth from the ground surface to the lowest point of waste disposal/storage:

THE ON-SITE WATER TABLE AND THE LOWEST POINT OF WASTE DISPOSAL ARE AT SAME ELEVATION. THEREFORE, DEPTH OF WASTE IS 30 FEET.

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

32 INCHES (MATP) PER HRS MANUAL

Mean annual lake or seasonal evaporation (list months for seasonal):

28 INCHES (MALE) PER HRS MANUAL

Net precipitation (subtract the above figures): 4 INCHES

Permeability of Unsaturated Zone

Soil type in unsaturated zone: FILLED WASTE AND COVER MATERIAL,
(COVER MATERIAL IS IN TWO FORMS; ONE IS CLAY, THE OTHER
IS FLY ASH MIXED WITH LIME AND LIQUID LEACHATE).

Permeability associated with soil type: 10^{-5} cm/sec AS PER ISBH
PERSONNEL.

Physical State

Physical state of substances at time of disposal (or at present time for
generated gases): SLUDGE AS PER ISBA RECORDS OF
ON-SITE INDUSTRIAL WASTE DISPOSAL.

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated: *SANITARY LANDFILL (ONLY CONTAINMENT AT THIS SITE).*

Method with highest score: *LANDFILL HAS A NATURAL CLAY BOTTOM OF ABOUT 65 FEET OF CLAY AND OPERATOR HAS INSTALLED A LEACHATE COLLECTION SYSTEM. SIDE WALLS HAVE BEEN LINED WITH CLAY, AND THE SOUTH AND EAST WALLS BARRIER DIKS.*

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated: *LEAD
ARSENIC
α-BHC (ISOMER OF LINDANE)
ASBESTOS FINES
COPPER*

Compound with highest score: *LEAD*
TOXICITY = 3
PERSISTENCE = 3

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum): *190,075 CUBIC YARDS*

Basis of estimating and/or computing waste quantity: *ISBH HAS RECORDS OF INDUSTRIAL WASTE DISPOSED AT THIS SITE. THE ABOVE FIGURE REPRESENTS QUANTITY THAT IS CONSIDERED TO BE HAZARDOUS INDUSTRIAL WASTE.*

* * *

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

DRINKING WATER FOR SINGLE FAMILY RESIDENTS.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply: *THERE ARE A FEW HOMIES AT 2ND AVE. AND HOBART ST. THAT HAVE SHALLOW WELLS AS PER E+E, INC SURVAY OF GARY FOR PEOPLE DRINKING GROUND WATER, MARCH, 1984.*

Distance to above well or building: *THE DISTANCE TO THESE WELLS IS GREATER THAN 1/2 - MILE AND LESS THAN 1-MILES AS PER HIGHLAND QUADRANGLE MAP, (USGS).*

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

448 PEOPLE (CITY OF GARY)

703 PEOPLE (BLACK OAK AREA)

380 PEOPLE (TRI-STATE AND CLINE AVE AREA)

SOURCE OF INFORMATION - HRS WORK SHEET FOR MIDGOTT AND LAKE SAND JO.

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre): *NONE - THERE IS NO FARM LAND WITHIN 3-MILES OF SITE AS PER HIGHLAND TOPO.*

Total population served by ground water within a 3-mile radius: *1,531 PEOPLE*

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum): *α-BHC (ISOMER LINDANE)*

DI-N-BUTYL PHTHALATE

LEAD

ARSENIC

NICKEL

Rationale for attributing the contaminants to the facility: *THE WATER SAMPLE (#E-7168-ME-1662) TAKEN 1/24/84 FROM DRAINAGE DITCH BETWEEN LANDFILL AND VULCAN MATERIAL, METAL DIV. PLANT SHOWED BOTH HEAVY METALS AND ORGANIC COMPOUNDS. THE ORGANIC PRIORITY POLLUTANTS ARE ATTRIBUTED TO SITE. HEAVY METALS ARE ATTRIBUTED TO VULCAN'S SURFACE PONDS. OPERATOR DID DISCHARGE LEACHATE TO GRAND CALUMET RIVER FOR A PERIOD OF TIME WITHOUT AID OF A NPDES PERMIT.*

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent: *NA*

Name/description of nearest downslope surface water: *NA*

Average slope of terrain between facility and above-cited surface water body in percent: *NA*

Is the facility located either totally or partially in surface water? *NA*

Is the facility completely surrounded by areas of higher elevation? *NA*

1-Year 24-Hour Rainfall in Inches *NA*

Distance to Nearest Downslope Surface Water *NA*

Physical State of Waste *NA*

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated: *NA*

Method with highest score: *NA*

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated *LEAD*
 ARSENIC
 ASBESTOS FINES
 NICKEL
 α-BHC (ISOMER OF LINDANE)

Compound with highest score: *LEAD*

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum): *190,075 CUBIC YARDS AS PER ISBH SITE RECORDS.*

Basis of estimating and/or computing waste quantity: *ISBH HAS MAINTAINED RECORDS OF INDUSTRIAL WASTE DISPOSED AT SITE ALONG WITH NAMES OF GENERATORS.*

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance: *RECREATION AND INDUSTRIAL USE.*

Is there tidal influence? *NO - NOT FOR INDIANA*

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less: *NONE*

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less: *SLIGHTLY GREATER THAN 1/2-MILE FOR 50-ACER WETLAND WEST OF LANDFILL AND NORTH OF GRAND CALUMET RIVER, AS PER HIGHLAND TOWN MAP, (1968).*

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less: *NONE FOR NORTHERN INDIANA AS PER ISG4 PERSONNEL.*

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake: *NONE WITHIN 3-MILES AS PER CITY WATER DEPT. PERSONNEL.*

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre): *THERE ARE NO FARMS WITHIN 3-MILE RADIUS OF SITE,*

Total population served: *ZERO*

Name/description of nearest of above water bodies: *NA*

Distance to above-cited intakes, measured in stream miles. *LAKE MICHIGAN WATER INTAKES FOR CITIES IN NORTHERN INDIANA ARE GREATER THAN 6-MILE FROM SITE.*

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected: *NONE - AS PER ISDH PERSONNEL*

Date and location of detection of contaminants *NA*

Methods used to detect the contaminants: *NA*

Rationale for attributing the contaminants to the site: *NA*

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound: *NA*

Most incompatible pair of compounds: *NA*

Toxicity

Most toxic compound: *NA*

Hazardous Waste Quantity

Total quantity of hazardous waste: *NA*

Basis of estimating and/or computing waste quantity: *NA*

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined: *NA*

0 to 4 mi	0 to 1 mi	0 to 1/2 mi	0 to 1/4 mi
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Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less: *NA*

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less: *NA*

Distance to critical habitat of an endangered species, if 1 mile or less: *NA*

Land Use

Distance to commercial/industrial area, if 1 mile or less: *NA*

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less: *NA*

Distance to residential area, if 2 miles or less: *NA*

Distance to agricultural land in production within past 5 years, if 1 mile or less: *NA*

Distance to prime agricultural land in production within past 5 years, if 2 miles or less: *NA*

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site? *NA*

FIRE AND EXPLOSION

1 CONTAINMENT

Hazardous substances present: *NONE - THERE ARE NO HAZARDOUS SUBSTANCES PRESENT AT THIS SITE THAT COULD CAUSE A THREAT OF FIRE OR EXPLOSION OTHER THAN PAPER.*

Type of containment, if applicable: *NA*

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements: *NA*

Ignitability

Compound used: *NA*

Reactivity

Most reactive compound: *NA*

Incompatibility

Most incompatible pair of compounds: *NA*

* * *

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility: *NA*

Basis of estimating and/or computing waste quantity: *NA*

* * *

3 TARGETS

Distance to Nearest Population *NA*

Distance to Nearest Building *NA*

Distance to Sensitive Environment

Distance to wetlands: *NA*

Distance to critical habitat: *NA*

Land Use

Distance to commercial/industrial area, if 1 mile or less: *NA*

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less: *NA*

Distance to residential area, if 2 miles or less: *NA*

Distance to agricultural land in production within past 5 years, if 1 mile or less: *NA*

Distance to prime agricultural land in production within past 5 years, if 2 miles or less: *NA*

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site? *NA*

Population Within 2-Mile Radius *NA*

Buildings Within 2-Mile Radius *NA*

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident: *NONE AS PER
ISBA PERSONNEL AND SITE FILE*

* * *

2 ACCESSIBILITY

Describe type of barrier(s): *THERE ARE NATURAL AND MAN-
MADE BARRIERS ON THREE (3) SIDES OF SITE. THE
ONLY SIDE OPEN TO TRESPASSERS IS ON THE WEST.
HOWEVER, WORKMEN ARE PRESENT 24 HOURS A DAY.*

3 CONTAINMENT

Type of containment, if applicable: *WASTE IS COVERED DAILY
WITH AT LEAST ONE (1) FOOT OF COVER MATERIAL AS
PER ISBA SITE INSPECTORS.*

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated: *LEAD
ARSENIC
NICKEL
PYRENE
ASBESTOS FIBERS*

Compound with highest score:

LEAD

* * *

5 TARGETS

Population within one-mile radius

8,000 PEOPLE AS PER HIGHLAND TOPO HOUSE COUNT.

Distance to critical habitat (of endangered species) NONE AS PER ISBH